

CHAPTER III

RESEARCH METHODOLOGY

III. 1 Research Design

This research was a comparative study with a quasi-experimental design. Two ongoing programs were compared in two different groups. The quasi experimental design involves selecting two groups or more differing on some variables and comparing them to some dependent variable (Gay, 2000:353). Then, according to Creswell, J. W (2009: 160), quasi-experimental design with nonequivalent pre-test and post-test control-group design is the most frequent used by the researchers. It involves selecting two groups without random assignment. Both groups take a pre-test and a post-test. Only the experimental group receives the treatment. McGowan (2011:1) states comparative experiment plays a role in each phase of an educational research program, from studies of initial efficacy to larger trials that confirm or optimize effects of educational interventions. The comparative experiment is usually one of three types (Gay and Airasan, 2000:367) : Comparison of two different approaches (A versus no A); Comparison of a new approach and the existing approach (A versus no A); Comparison of different number of a single approach (A little of A versus a lot of A).

In this research type 1 (comparison of two different strategies) was used. There were three variables. Story Map and Two-column Notes strategies were the

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independent variables, while the students' reading comprehension was the dependent variable. Therefore, the experimental classes were provided with a pre-test, treatment and a post-test as shown in the following table:

Table III.1 Research Design

E1	01	X1	02
E2	01	X2	02
Control Group	01		02

Figure (Gay, 2000: 353)

E1 : Experimental Group1

E2 : Experimental Group2

X1: Independent variable 1 (Story Map strategy)

X2 : Independent variable 2 (Two Column-Notes strategy)

01 : pre-test

02: post-test

Based on the diagram above, Gay (2000: 354) states that definition and selection of comparison group is a very important part of the quasi-experimental design procedure. The independent variable differentiating the groups must be clearly and operationally defined since each group represents a different population. The way in which the groups defined affect the generalize ability of the results.

This study took place at Islamic Junior High School Darel Hikmah Pekanbaru located on Manyar Sakti Street, Panam-Pekanbaru from February to March 2017.

The subject of the research was the second year students of Islamic Junior High School Darel Hikmah Pekanbaru, and the object of this study was a comparison between the Effect of Using Story Map and Two-Column Notes strategy on students' reading comprehension.

III.4.1. Population

The population of this research was the second year students of Islamic Junior High School Hikmah Pekanbaru in academic year 2016/2017. The total number of the students was 290 students which consisted of ten classes. Based on the population of this research, cluster sampling was considered appropriate to determine the sample. This technique was used because the population was in groups (cluster), not individual. According to (Gay and Airasian, 2000), cluster sampling randomly selects groups not individuals. All the members of selected groups have similar characteristics, it means that they are homogenous. The groups were taught by using different treatments; the researcher took three classes in which they are as experimental group 1, experimental group 2 and control group.

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Table III.2.

The Population of the Second Year Students of Islamic Junior High School

Darel Hikmah Pekanbaru.

Class	Total of Students
VIII A 1	26
VIII A 2	28
VIII A 3	28
VIII A 4	31
VIII A 5	28
VIII B 1	31
VIII B 2	29
VIII B 3	32
VIII B 4	31
VIII B 5	30
Total Population	290

III.4.2. Sample

Sampling is the process of selecting a number of individuals for a study in such a way that the individuals represent the larger group from which they are selected. The purpose of sampling is to gain information about the population by using the sample (Gay, 2000: 123). The technique of choosing the sample of this



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research was cluster sampling, Gay (2000:12) states that cluster sampling randomly selects groups, not individual. All the members of selected groups had similar characteristics. The homogenous characteristics were the consideration. Because all classes were homogenous, the sample was chosen randomly, VIII A2 as the experimental class 1, VIII A 3 as the experimental class 2 and VIII A5 as the control class . The classes chosen were based on the English teacher's information that all classes were homogenous or the students' capability of the three classes were equivalent and taught by the same English teacher.

Table III.3

The Sample of the Second Year Students of Islamic Junior High School

Darel Hikmah Pekanbaru

Class	Number of Students
VIII A2	28
VIII A3	28
VIII A5	28
Total Sample	84

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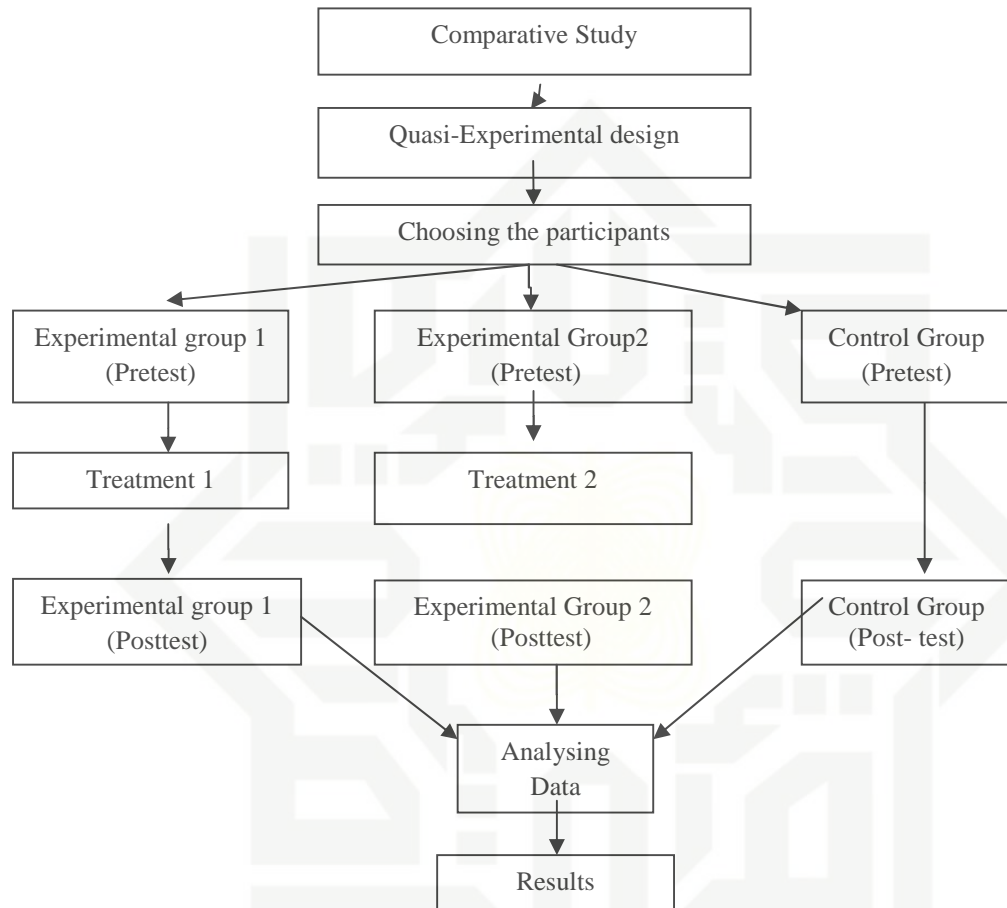
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III.5 Research Procedure

Figure III.1



- The Procedures of collecting data for experimental 1 and experimental 2 groups

a. Pre-test

A pre-test was given to the students before conducting the teaching and learning process using Story Map strategy and Two-Column Notes Strategy. It was used to measure the student's reading comprehension by using a written test.

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b. Treatment

In the treatment, the students of the experimental class were taught by using Story Map strategy and the students of the experimental class were using Two-Column Notes Strategy. The teacher taught and explained the narrative text by using the procedures of Story Map strategy and Two-Column Notes Strategy with pre activities, whilst activities and post activities as stated in chapter II.

c. Post-test

A post-test was conducted to the students of the experimental 1 and experimental 2 after applying the treatment by using Story Map strategy and Two-Column Notes Strategy. The results of the post-test were compared with the pre-test results in order to determine the comparison of the Story Map Strategy and Two-Column Notes Strategy on the students' reading comprehension after conducting 4 meetings using the Story Map Strategy for the experimental group 1 and Two-Column Notes Strategy for the experimental group 2.

2. The Procedures of collecting data for the control group

a. Pre-test.

A pre-test was administered to the students of the control group before they were taught by using conventional strategy or non- Story Map Strategy and non-Two-Column Notes Strategy. The pre-test

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given to the students of the control group was similar to those of the experimental group 1 and the experimental group 2.

- b. Teaching by using non- Story Map Strategy and non-Two-Column Notes Strategy

The students were taught about reading comprehension by using a conventional strategy with the same topics and materials given to the experimental group 1 and the experimental group 2.

- c. Post-test

A post-test was administered to the students of the control group after being taught for four meetings by using the conventional strategy. The result of the post-test was compared with the pre-test result in order to compare their reading comprehension.

III.6 Reasearch Instruments

III.6.1. Pilot Study

A pilot study is a standard scientific tool for the scientific research that allows the researcher to conduct a preliminary analysis before a full-blown of study or experiment. It is a small scale preliminary study conducted in order to evaluate feasibility, time, cost, adverse events, and effect size (statistical variability) in an attempt to predict an appropriate sample size and improve upon the study design prior to performance of a full-scale research project (Stephen B, 2007: 168-169).

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A. Preparations of the Study

In order to find out an optimal result and of which can be accounted of this research, some preparations needed to be fulfilled. The preparations are illustrated as follows :

a. Making Instruments

Instrument plays an important role in a research in order to collect data required in the experimental research. A reading test was administered as the instrument in this research. A pre-test and a post-test were administered to three classes (VIII A2, VIII A3 and VIII A5). A pre-test administered before the treatment and a post-test was also administered aiming at finding out the students' reading comprehension after treatment, while in the control class a pre-test and a post-test were also given without any treatment. The treatments were given by teaching with Story Maps Strategy and Two Column Notes Strategy. This activity was also intended to find out the students' skill after giving the treatment. The questions of the reading test were related to the reading indicators that consisted of 30 items of multiple choice. They were tested to the students to measure their reading comprehension. The clearer illustration is presented in the following table:

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Table. III.4
Blue Print of English Reading Comprehension

NO.	READING INDICATORS	ITEMS	TOTAL QUESTIONS
1	The main idea of each paragraph of the reading text	7,17,20,25	4
2	The detailed information in the reading text	1,11,13,24,26	5
3	The meaning of unfamiliar words in the reading text	3,12,15,18,22	5
4	The synonym and antonym of the word in the reading text	2,6,10,23,30	5
5	The references and inferences of the reading text	5,9,14,21,27,28	6
6	The generic structure of the reading text	4,8,16,19,29	5
Total			30

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In addition, to know the level of students' achievement, the students' scores were classified into some levels which are tabulated in the following table:

Table III.5

The Classification of Students' Scores

Scores	Categories
81 – 100	Excellent
61 – 80	Good
41 – 60	Mediocre
21 – 40	Poor
0 – 20	Very poor

b. Training of The Teacher

It was very important to train the teacher in order that process of the treatments could run appropriately. The English teacher of class VIII was trained how to apply the Story Map Strategy and Two Column-notes Strategy in the class.

c. Conducting a Try Out

The try out was administered in order to get reliable and valid items which were eligible to use in this research. It was tested to the students who did not participated in this research. They are the students of IX B5 Darel Hikmah Pekanbaru.

d. Analysing Reliability and Validity of the Instrument

After conducting a try out, reliability and validity of the test were analysed through SPSS 20 program. Finally, the reliable and valid items were used as the instrument both in the pre-test and the post-test.

III.7. Data Collection Technique

III.7.1. Observation

Observation lists were used to observe directly how Story Map Strategy in the experimental group 1 and Two Column-notes Strategy in the experimental group 2 were applied in teaching. Further, it was done to see how far or whether or the indicators of both Story Map Strategy and Two-Column Notes Strategy were fulfilled.

III.7.2. Test

To collect the data, reading tests were administered in two stages: a pre-test and a post-test to the experimental class 1, the experimental class 2 and the control class. The test consisted of 30 items multiple choices related to five different reading narrative texts. The pre-test was administered before the students obtained the treatment. It was done to measure the students' reading comprehension before they were given the treatment. The experimental class 1 was taught by using Story Map Strategy and the experimental class 2 was taught by using Two Column-notes Strategy, whereas the control class was taught without treatment. Afterward, a post-test was given. It was done to see the students' improvement after getting the treatments. Finally, the entire test results were analyzed to answer the research questions mentioned in the chapter II.

III.8 Validity and Reliability Test

III.8.1 The Validity Of Instrument

Before collecting the data, each item of questions was tested in order to be ideally tried out. The purpose of the try out was to find out the quality of the test items. Brown (2000;22) states that a test is method of a measuring a person's ability, knowledge, or performance in a given domain.

Besides, Creswell suggests that validity is the individual's scores from an instrument make sense, meaningful, enable you, as the researcher, to draw good conclusions from the sample you are studying to the population (Creswell 2008:169). It means that validity is the extent to which inferences made from assessment results are appropriate, meaningful, and useful in terms of the purpose of the assessment. To analyse the validity of data, inter item validity was analysed using SPSS 20 program. The following table is the criteria of items validity.

Table III.6

The criteria of items validity

R	Interpretation
$0,80 < r \leq 1,00$	Very High
$0,60 < r \leq 0,79$	High
$0,40 < r \leq 0,59$	Average
$0,20 < r \leq 0,39$	Low
$0,00 < r \leq 0,19$	Very Low

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III.8.2 The Reliability of Instrument

Reliability is an important characteristic of a good test. In order to calculate the reliability of the test, the mean of the students' scores and the standard deviation were sought.

Reliability refers whether the test is consistent in its scores and gives us an indication of how the test score is accurate (Shohamy, 1985:70). It is defined as the extent to which a test produces consistent results when it is administered under similar condition (Hatch and Farhady, 1982:243). In addition, Brown (2003) suggests reliability has to do with accuracy of measurement. That is why reliability is important to be measured. To obtain the reliability of the test given, SPSS 20 program was used to find out whether or not the test was reliable.

Table III.7 Ccriteria Coefisien of Reliability

CoefisienReliability	Criteria
0,80 r_{11} 1,00	Highest reliability
0,60 r_{11} 0,79	High reliability
0,40 r_{11} 0,59	Middle reliability
0,20 r_{11} 0,39	Low reliability
0,00 r_{11} 0,19	Lowest reliability

III.8.3. Results of the Reliability and Validity of the Try Out

To find out the reliability and validity of the test, a try out was administered to the ones who were engaged in this research. The try out was held on February 13th, 2017. The participants of the try out were 27 students who were

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adopted from the third year of Islamic Junior High School Darel Hikmah Pekanbaru. The try out consisted of 30 items of multiple choice. There were six indicators tested in the try out: (1.) The main idea of each paragraph of the reading text, (2.) The detailed information in the reading text, (3.) The meaning of unfamiliar words in the reading text, (4.) The synonym and antonym of the word in the reading text, (5.) The references and inferences of the reading text, (6.) The generic structure of the reading text.

Table. III.8
Reliability Statistics

Cronbach's Alpha	N of Items
,661	30

Table III.7 displays that the value of cronbach's alpha is 0.661. It means that the items are reliable in which the value of internal consistency is 0.661, it is 0,60 r_{11} 0,79 it indicates the reliability of test is *Good*.

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Table III.9**The Analysis of Try Out of Reading Comprehension Validity**

Item	R	Interpretation of Validity	Status
1	0.403	Average	Valid
2	0.503	Average	Valid
3	0.770	High	Valid
4	0.512	Average	Valid
5	0.332	Low	Invalid
6	0.732	High	Valid
7	0.480	Average	Valid
8	0.219	Low	Invalid
9	0.643	High	Valid
10	0.466	Average	Valid
11	0.684	High	Valid
12	0.661	High	Valid
13	-0.047	Very low	Invalid
14	0.520	Average	Valid
15	0.457	Average	Valid
16	0.674	High	Valid
17	0.271	Low	Invalid
18	0.457	Average	Valid
19	0.712	High	Valid
20	0.679	High	Valid
21	0.595	High	Valid
22	0.244	Low	Invalid
23	0.483	Average	Valid
24	0.562	High	Valid
25	0.634	High	Valid
26	0.545	High	Valid
27	0.422	Average	Valid
28	0.515	High	Valid
29	0.548	High	High
30	0.407	High	High

The above Table shows that 25 of the items are valid. It means that the instrument could be used in this research. And some invalid items were dismissed and changed.

III.9. Data Analysis Technique

The scoring guide was chosen as the criteria of scoring representing the basic aspects of reading. The reading results were evaluated by considering five aspects and each aspect had a score or a level. The specification of the aspects were the topic, the main idea, the specific idea, the textual reference, and the word meaning.

To analyze the data, the scores of the pre-test and the post-test of experimental groups were used. The scores were analysing statistically for both descriptive and inferential statistic. In this research, the researcher used these following formulas:

1. T-test

T-test was conducted to find out the difference between the scores of the pre-test and the post-test undergone by the experimental group 1 using Story Map Strategy and the difference between the scores of the pre-test and the post-test undergone by the experimental group 2 using Two Column-notes strategy and the difference between both pre-test and post-test scores of the experimental group 1 and the experimental group 2.

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2. Independent Sample t-test

Parmjit (2006:160) says that Independent sample t-test is used to find the significance of the difference between the means of two samples. Gay (2000:484) adds that the t-test for independent sample is used to determine whether there is a probably a significant difference between the means of independent sample t-test and dependent sample t-test is used to find out the results of the first and second hypotheses. To find out whether there is significant a difference or there is no significant difference between two or more variables can be analyzed by using Independent Sample t_{test} with following aims:

- a. To find out any significant difference of the pre-test scores of students' reading comprehension between the experimental group 1 and the experimental group 2 at Islamic Junior High School Darel Hikmah Pekanbaru
- b. To find out any significant difference of the pre-test scores towards students' reading comprehension between the experimental group 1 and the control group at Islamic Junior High School Darel Hikmah Pekanbaru
- c. To find out any significant difference of the pre-test score towards students' reading comprehension between the experimental group 2 and the control group at Islamic Junior High School Darel Hikmah Pekanbaru

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- d. To find out any significant difference of the post-test scores towards students' reading comprehension between the experimental group 1 and the experimental group 2 at Islamic Junior High School Darel Hikmah Pekanbaru
- e. To find out any significant difference of the post-test scores towards students' reading comprehension between the experimental group 1 and the control group at Islamic Junior High School Darel Hikmah Pekanbaru
- f. To find out any significant difference of the post-test scores towards students' reading comprehension between the experimental group 2 and the control group at Islamic Junior High School Darel Hikmah Pekanbaru

To analyze the final-test scores of the experimental groups, the following formula was used:

$$t = \frac{M_X - M_Y}{\sqrt{\frac{SD_X^2}{N_1 - 1} + \frac{SD_Y^2}{N_2 - 1}}}$$

Where:

$t_{1.}$ = The value of comparing two means

M_X = Mean of the score in the pre-test

M_Y = Mean of the score in the post-test

SD_X = Standard deviation of the experimental group 1

SD_Y = Standard deviation of the experimental group 2

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N_1 = Number of the sample in the pre-test

N_2 = Number of the sample in the post-test

1 = the constant number

3. Paired Sample T-Test

Non-independent sample t - t_{test} is known also as Paired-Sample t_{test} . The researcher used this formula to obtain the results of the hypotheses to find out whether there was a significant effect of using Story Map strategy, Two-Column Notes Strategy and conventional teaching technique on students' reading comprehension of the second level at Islamic Junior High School Darel Hikmah Pekanbaru. L.R Gay states that t -test for non-independent sample is used to compare groups that are formed by some types of matching or to compare a single group's performance on a pre-test and post-test or on two different treatments.

(L.R Gay, 2000: 488) as presented as in the following:

1. To find out any significant difference between the pre-test and the post-test scores towards students' reading comprehension of the experimental group 1 at Islamic Junior High School Darel Hikmah Pekanbaru
2. To find out any significant difference between the pre-test and the post-test scores towards students' reading comprehension in the experimental group 2 at Islamic Junior High School Darel Hikmah Pekanbaru

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The pre-test and post-test scores were used in the experimental class in order to find the significant effect of using Story Map strategy and Two-Column Notes Strategy on students' reading comprehension of the second level of Islamic Junior High School Darel Hikmah Pekanbaru.

To obtain the data, SPSS 20 was used. Below is the formula of paired-sample t_{test} :

$$t = \frac{\bar{D}}{\sqrt{\frac{\sum D^2 - \frac{(\sum D)^2}{N}}{N(N-1)}}$$

D : Gain Score ($D=X_2-X_1$)

The t-table has the function to see if there is a significant improvement among the mean of the score of both the pretest and the posttest. The t-obtained value was consulted with the value of t-table at the degree of freedom ($df = N-1$) which was statistically hypothesis:

$H_a: t_o > t\text{-table}$

$H_o: t_o < t\text{-table}$

H_a is accepted if $t_o > t\text{-table}$ or there is a significant effect after giving the treatment using Story Map strategy and Two-Column Notes Strategy towards the



students' reading comprehension of the second level at Islamic Junior High School Darel Hikmah Pekanbaru.

H_0 would be accepted if $t_o < t\text{-table}$ or there was no significant effect after giving treatment using Story Map strategy and Two-Column Notes Strategy toward students' reading comprehension of the second level at Islamic Junior High School Darel Hikmah Pekanbaru.

Afterward, it was better to find the coefficient effect of T-test by using the following formula:

$$\tilde{\eta}^2 = \frac{t^2}{t^2 + n - 1}$$

$$kp = \tilde{\eta}^2 \times 100\%$$

Where:

kp : Coefficient effect

$\tilde{\eta}^2$: Coefficient

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